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Tiivistelmä-Referat-Abstract
The thesis develops misspecification tests based on so called quantile residuals and applies them to nonlinear time series models for which conventional residuals are not well suited. Mixture models proposed in Hamilton (1989), Le, Martin and Raftery (1996), Wong and Li (2000, 2001a, 2001b), Zeevi, Meir and Adler (2001), Rahbek and Shephard (2002a, 2002b), Lanne and Saikkonen (2003) and Lanne (2006) are examples of models of this type.

A general framework is developed and used to obtain three tests aimed at detecting non-normality, autocorrelation and conditional heteroscedasticity in quantile residuals. These tests can be thought of as pure significance type tests of Cox and Hinkley (1974). Under regularity conditions the tests of the paper are shown to be asymptotically chi-square distributed, and according to simulations they have reasonable size and power properties in finite samples. Empirical examples on interest rate series illustrate the application and usefulness of both the mixture models and the tests of the paper.

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